

REMARKS

Claims 1 - 42 are pending in this application. By this Amendment, Figures 1 and 2 are amended, a Substitute Abstract of the Disclosure is provided and claims 1, 9, 17, 28 and 39 - 42 are amended. Attached hereto is a marked up version of the changes to the claims by the current amendment. The attachment is captioned "Version With Markings To Show Changes Made."

Entry of this Amendment is proper under 37 C.F.R. §1.116 because the Amendment: a) places the application in condition for allowance, for the reasons set forth below; b) does not raise any new issues that require further search and/or consideration; and c) places the application in better form for an appeal should an appeal be necessary. More particularly, the amendments merely clarify features related to the shunt/mechanical connector. The amendment are also similar to features recited in claim 18. Similarly claimed features therefore have been considered. No further search and/or consideration is necessary. Entry is proper under 37 C.F.R. §1.116.

The Office Action requests that Figures 1 and 2 be designated as --PRIOR ART-- or --RELATED ART--. Applicant has not admitted that these figures are prior art. However, in an effort to further prosecution, the attached Request for Approval of Drawing Corrections labels Figures 1 and 2 as related art. This is not an admission that these figures are prior art. Rather, these figures are helpful in understanding the technicalities set forth in the present specification.

The Office Action does not object or reject the Abstract. However, in view of the repeated statements regarding the Abstract, a Substitute Abstract of the Disclosure is attached.

The Office Action objects to claims 39 - 42 because of informalities. The attached amendments to claims 39 - 42 obviate the grounds for objection. Withdrawal of the objection is respectfully requested.

The Office Action rejects claims 1 - 38 (and apparently claims 39 - 42) under 35 U.S.C. §102(e) by U.S. Patent 6,388,207 to Figueroa et al (hereafter Figueroa). The rejection is respectfully traversed.

Independent claim 1 recites a shunt/mechanical connector disposable to directly contact two discrete electrical components mountable together via a grid array. The connector to provide mechanical support and to provide a shunt electrical conduction path for predetermined electrical current between the electrical components such that the predetermined electrical current does not pass through grid array connectors of the grid array. Additionally, at least part of the shunt/mechanical connector to extend within one of the electrical components so as to provide the shunt electrical conduction path.

The Office Action relies on Figueroa's Figure 6 as showing the claimed features. More specifically, the Office Action states that Figueroa's entire substrate 60 can be characterized as the connector. The Office Action also asserts that the substrate 60 directly contacts the two discrete electrical components 50, 152 via lands 74 and solder balls 80. See the last paragraph on page 7 of the Office Action.

Figueroa does not suggest that at least part of the shunt/mechanical connector to extend within one of the electrical components so as to provide the shunt electrical conduction path as recited in independent claim 1. That is, Figueroa shows a substantially planar die 50, a substantially planar IC package substrate 60 and a substantially planar PCB 152. The package substrate 60 is provided between the die 50 and the PCB 152. The package substrate 60 does not suggest the

claimed shunt/mechanical connector as recited in independent claim 1. More specifically, the package substrate 60 does not provide a mechanical support and provide a shunt electrical conduction path. Furthermore, the package substrate 60 does not teach or suggest at least part of the shunt/mechanical connector to extend within one of the electrical components so as to provide the shunt electrical conduction path as recited in independent claim 1. The package substrate 60 does not extend within the die 50 or PCB 152. Thus, independent claim 1 defines patentable subject matter.

Each of independent claims 17 and 28 defines patentable subject matter for at least similar reasons as claim 1.

Additionally, independent claim 9 recites a plurality of discrete electrical components mounted together by a grid array that contacts a first one of the discrete electrical components and a second one of the discrete electrical components. The shunt/mechanical connector disposed to directly contact the first one of the electrical components and to directly contact the second one of the electrical components. However, Figueroa's ball grid array does not contact both the die 50 and the PCB 152. Thus, Figueroa does not teach or suggest the claimed plurality of discrete electrical components mounted together by a grid array that contacts a first one of the discrete electrical components and a second one of the discrete electrical components. As such, independent claim 9 defines patentable subject matter at least for this reason.

Claims 2 - 8 and 39 depend from claim 1, claims 10 - 16 and 40 depend from claim 9, claims 18 - 27 and 41 depend from claim 17 and claims 29 - 38 and 42 depend from claim 28, and therefore define patentable subject matter at least for this reason.

In addition, the dependent claims also recite features that further and independently distinguish over the applied references. For example, dependent claim 18 (and similarly dependent claim 29) recites that the shunt/support member being at least one shunt/support post disposable between the electrical components. The Office Action has never addressed where these features are shown in Figueroa. That is, the Office Action merely asserts that Figueroa discloses these features. Figueroa's package substrate 60 does not include at least one shunt/support post disposable between the electrical components. Thus, dependent claim 18 (and similarly dependent claim 29) defines patentable subject matter at least for this additional reason. Should the Patent Office maintain the rejection of these claims (as well as the other dependent claims) then the Patent Office is requested to specifically identify where these features are shown in Figueroa.

Additionally, dependent claim 27 (and similarly dependent claim 38) recites that the shunt/support member includes aligner components to substantially align the opposing conductive grid-array patterns of the electrical components during mounting together thereof. The Office Action has never addressed where these features are shown in Figueroa. That is, the Office Action merely asserts that Figueroa discloses these features. Figueroa's IC package substrate 60 does not include aligner components to substantially align the opposing conductive grid-array patterns of the electrical components. Figueroa does not substantially align opposing conductive grid-array patterns. Thus, dependent claim 27 (and similarly dependent claim 38) defines patentable subject matter at least for this additional reason. Should the Patent Office maintain the rejection of these claims (as well as the other dependent claims) then the Patent Office is requested to specifically identify where these features are shown in Figueroa.

For at least the reasons set forth above, it is respectfully that each of claims 1 - 42 define patentable subject matter. Withdrawal of the outstanding rejection is respectfully requested.

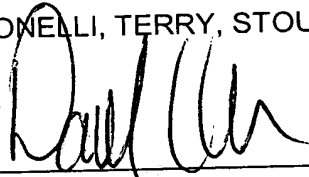
CONCLUSION

In view of the foregoing, it is respectfully submitted that the above-identified application is in condition for allowance. Favorable consideration and prompt allowance of claims 1-42 are respectfully requested.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 219.40775X00), and please credit any excess fees to such deposit account.

Respectfully submitted,

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Attachments